

Chapter 3 Access and Support Facilities

3-1. General

Requirements for access and support facilities for navigation dams are briefly described below and are closely allied to those for locks presented in EM 1110-2-2602. EM 1110-2-2602 and EM 385-1-1 should be used as principal resources in planning the access and support facilities for navigation dams.

3-2. Access to Dam Site

The principal vehicular access to the lock and dam will usually be on the lock side of the waterway because most of the operation and maintenance activities will take place there. Paved access to the end of the dam on the opposite side of the waterway is also desirable, particularly when it is necessary to deliver and receive heavy parts and equipment by truck at that location. Some means of vehicular access at that location is needed for routine maintenance.

3-3. Pedestrian Access

It is desirable to have access across the full length of the dam. Such access, however, may not be feasible if an overflow section without piers is included in the dam. In this situation, there is usually a more economical and acceptable means to access other portions of the dam or the lock from the shore than by a bridge, which would require inclusion of piers solely for its support. However, a service bridge between piers of a tainter-gated dam is essential for routine operation and maintenance activities, accessing tainter gate and bulkhead hoisting equipment for repair, and manual control of the gate operating equipment. These bridges also provide support for the electrical and other utilities required to run the hoisting equipment and may serve as a roadway for the bulkhead crane.

3-4. Elevators, Stairways, and Ladders

a. Elevators. In spite of the fact that the vertical distances between the lock wall and the service bridge on the dam and between various levels on the dam piers are typically quite large, elevators have not been used extensively. However, elevators may be used when justified because they will provide access for the handicapped, a means to lift and lower light freight, and routine access.

Further, access for the handicapped is a sensitive issue, and compliance with legal requirements for accessing certain areas may necessitate use of elevators. Current access requirements involving the handicapped are referenced in an HQUSACE memorandum, "Uniform Federal Accessibility Standards (UFAS)," dated 3 November 1986. A redetermination of "current" access requirements should always be made in planning for new navigation dam construction. For example, the Melvin Price Locks and Dam uses elevators to provide vertical lift from the lock walls (also the nongated section of the dam) to the level of the service bridge on the dam and from the service bridge to the control house located adjacent to the main lock. Similar provisions for elevators are included on Smithland Lock and Dam and will be included on the Olmsted Lock and Dam, both on the Ohio River.

b. Other vertical access. Stairways and/or ladders must be provided for vertical access where elevators are not to be used and where use of small ramps is not feasible. Stairways should be provided in lieu of ladders wherever practical when they will provide more convenient and safer access for personnel (i.e., stairways will not routinely be considered impractical simply because provision of ladder access is more economical).

3-5. Equipment Access

In some cases, the service bridge over the gated section of the dam provides the roadway or rail support for the bulkhead crane. Obviously, the bridge design would be controlled by the bulkhead crane loadings if one is to be provided but, if not, the bridge design will be based on loadings from pedestrians, tools, and support of disassembled parts of the gate hoisting equipment. In many cases, equipment will be transported to and from the dam on work flats and lifted to the level of the service bridge by a jib crane mounted on one of the dam piers. Equipment access is discussed in more depth in subsequent portions of this manual.

3-6. Operations and Maintenance Buildings

Normally, these buildings will serve jointly for operation and maintenance activities for both the lock and dam. They may be provided either at the lock and dam site or at a centralized remote location, depending on operational requirements. Generally, the purpose of these buildings will be to provide offices, shops, and storage to support the routine onsite operations and maintenance activities.

3-7. Control Houses and Operating Platforms

Although provisions are included for remote operation of gates at most modern navigation dams and should be included for future dams, local control of gates must also be provided to facilitate operation when remote operation is not practical or desired. More detailed coverage of operational and design requirements for control houses and operating platforms is provided in subsequent chapters.

3-8. Control Rooms for Remote Lock and Dam Operation

Depending on the size and layout of the project and types of structural features involved (e.g., multiple locks), it may be appropriate to operate the lock and dam gates, lock filling and emptying valves, etc., from a centralized control room having a reasonably good view of all operating features. This control room could be located on top of a dam pier which extends above the tainter gate hoisting machinery room (as at Melvin Price Locks and Dam). However, in most cases remote operation will be from a control room on the lock wall. Remote operation will require the visual aid of television cameras.

3-9. Storage Facilities for Protection of Equipment

a. Items to be incorporated in the construction. In circumstances where the government is to furnish items to

the construction contractor, the government may provide temporary storage facilities when warranted. For example, used sheet piling to be incorporated in a subsequent construction phase may require storage to ensure that the pilings are maintained in suitable condition for reuse in a future construction phase. Normally, construction activities should be scheduled so that necessary storage of items to be reused in future construction phases is provided by the contractor through provisions in the ongoing contract.

b. Storage of operations and maintenance equipment and spare parts. The aforementioned buildings will usually provide for storage of operations and maintenance equipment, spare parts, etc., of relatively small size and weight. However, large items such as bulkheads and bulkhead handling equipment will be stored either on the dam structure or at some convenient location off the structure.

c. Bulkhead storage. If a bulkhead crane is provided, some or all of the bulkheads will be stored on the dam structure. If the bulkheads are to be stored off the structure, a means of accessing the dam with the bulkheads must be determined, providing for such possibilities as loss of the upper and/or lower pools, sunken barges in the approach to the dam, and other conditions which might obstruct barge access for bulkhead installation.